PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application No.:	10/512,130
Filing Date:	October 13, 2004
Applicant:	Manuela NIEMEIER et al.
Group Art Unit:	1773
Examiner:	Monique R. Jackson
Title:	COATINGS, METHODS FOR PORDUCING THE SAME, AND THE USE THEREOF
Attorney Docket:	PAT-01027 Harness, Dickey & Pierce Docket No. 906-407

Director of the United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Appeal Brief Under 37 C.F.R. § 41.37

Sir:

This is an appeal from the Office Action mailed August 23, 2007, which had re-opened prosecution after an appeal brief filed on May 9, 2007. A second Notice of Appeal was mailed on November 19, 2007. This Brief is due, without extension, on January 19, 2008.

Appellants previously paid the fee under 37 C.F.R. § 41.20(b)(2); the Director is authorized by the accompanying Fee Transmittal to charge the difference between the present fee and the fee previously paid, which is $10, to Deposit Account No. 23-3425.

Table of Contents

Real Party in Interest

The real party in interest is BASF Coatings Aktienegesellschaft, a corporation of Germany, to which the inventors assigned all rights in this invention. The assignment was recorded by the USPTO on February 2, 2005 at reel 015634, frame 0149.

Related Appeals and Interferences

There are no related appeals or interferences.

Status of Claims

Claims 1-23 are all pending and all stand finally rejected. This appeal is taken as to all of the pending claims.

Status of Amendments

No amendment was filed after the final rejection.

Summary of Claimed Subject Matter

Independent claims 1, 19, and 23 are pending.

Claim 1 claims an article comprising a transparent coating. Page 4, line 5 (para. 16); page 18, lines 23-26 (para. 97). The coating has a thickness of at least 30 microns, a relative elastic resilience to DIN 55676 of at least 70%, and a scratch resistance corresponding to a score of not more than 2 in a steel wool scratch test according to DIN 1041 after 10 double strokes. Page 4, lines 5-8 (para. 16).

Regarding properties of the claimed article, the Claim 1 article comprising a transparent coating has improved surface protection. Page 3, lines 14-15 (para. 11) and page 4, lines 19-21 (para. 19). Although it appeared intuitive to correlate scratch resistance to coating surface hardness, it was not possible to do so, and such tests did not take into account other properties required of a coating. Page 2, lines 4-19. Furthermore, elastomers are resistive to damage by mechanical exposure but are unsuitable for transparent coating materials. Page 3, lines 1-8 (para. 9). The claimed coated substrate is both scratch resistant and has a high relative elastic resiliency. Page 4, lines 22-31 (paras. 20-21).

Claims 2-18, 21, and 22 are dependent on claim 12.

Independent claim 19 claims a process for producing a scratch-resistant coating. Page 4, lines 9-15 &28. The process comprises applying a coating material to a substrate or to an uncured, part-cured, or cured film present on the substrate, and curing the coating material. Page 4, lines 9-15 & page 20, lines 7-8. The coating material, following its solidification or curing, has an elastic resilience to DIN 55676 of at least 70% and a scratch resistance corresponding to a score of not more than 2 in a steel wool scratching test according to DIN 1041 after 10 double strokes. Page 4, lines 12-14.

Claim 20 is dependent on claim 19.

Independent claim 23 claims a method of testing scratch resistance of a coating, comprising providing a coating on an article, the coating having a thickness of at least 30 μm, and determining if the coating has a relative elastic resilience to DIN 55676 of at least 70%, and a scratch resistance corresponding to a score of not more than 2 in a steel wool scratch test according to DIN 1041 after 10 double strokes. Page 4, lines 12-14 & 24-26; page 6, lines 11-13 (para. 32).

Grounds of Rejection to Be Reviewed on Appeal

Claims 1-12 and 19-23 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement.

Claims 1-12 and 19-23 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite.

Claim 23 is rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the known test standards DIN 55676 and DIN 1041.

Claims 1-23 are provisionally rejected under the doctrine of nonstatutory obviousness-type double patenting as allegedly unpatentable over claims 1-25 of U.S. Patent Application 10/510,997.

Argument

I. Appellants' invention as clamed in claims 1-12 and 19-23 is enabled by the specification because the specification teaches how to prepare, apply, solidify or cure, and test the coated articles of claims 2-12, 21, and 22; how to apply a coating material to a substrate, cure the applied coating, and to test the coating of process claims 19 and 20; and how to carry out the method of testing of claim 23.

The specification enables each of the independent claims and their respective dependent claims. First, the specification provides enables claims 1-12, 21, and 22 because Appellants teach how to prepare coatings, apply them to articles, cure or solidify the applied coatings, and test the coated articles for the properties in the claims. While Applicants' claims are broad, preparing and testing coated substrates is described and illustrated in the present specification in sufficient detail to school the skilled artisan in how to make the articles according to the claims, including the provision of specific working examples.

The Federal Circuit has held that "the question of undue experimentation is a matter of degree. The fact that some experimentation is necessary does not preclude enablement; what is required is that the amount of experimentation 'must not be unduly extensive.'" *PPG Indus. Inc. v. Guardian Indus. Corp.,* 37 U.S.P.Q.2d 1618, 1623 (Fed. Cir. 1996). In *PPG Industries* the court further instructed that it is not the extent of experimentation, but the type that determines whether it is "unduly extensive": "The test is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed to enable the determination of how to practice a desired embodiment of the invention claimed." *PPG Indus. Inc. v. Guardian Indus. Corp.,* 37 U.S.P.Q.2d 1618, 1623 (Fed. Cir. 1996) (quoting with approval *Ex parte Jackson,* 217 U.S.P.Q. 804, 807 (BPAI 1983)).

In regard to the present claims, applying a coating on an article and measuring the coating's relative elastic resilience and scratch resistance involves straightforward application and testing techniques. The experimentation required is, therefore, not undue, and the claims are enabled.

The process of claims 19 and 20 involves actions that are well-explained in the present specification, from preparing coating materials (pages 6-17), applying the coating materials to a substrate (pages 17-20), and curing the applied material (pages 20-21). The test methods are established standards, and, further, specific working examples are described in the specification. Pages 22-26. The steps for carrying out the claimed process are described and explained in good detail in the specification, and it is well within the skill of one of ordinary skill in the art to carry out the process steps.

In view of these disclosures, Appellants submit that the specification enables one of ordinary skill in the art to carry out the claimed process of claims 19 and 20.

The method of claim 23, the steps of providing a coating with a thickness of at least 30 microns and determining if the coating has certain properties by applying two published test methods is enabled.

The Examiner cites *In re Mayhew,* 527 F.2d 1229, 1233, 188 USPQ 356, 358 (C.C.P.A. 1976), for the proposition that the claim lack an enabling disclosure because they do not include elements "critical or essential to the practice of the invention." In *Mayhew*, however, the specification taught that the method was only "practicable" by using a special step that had not been included in the claim (it simply would not work and could not produce the claimed product). *Id.* Such is not the case for the present specification and claims. The present specification describes an invention as set out in the claims (see, e.g., page 4, paragraphs [0016]-

[0018]; page 5, paragraphs [0025]-[0027]) and, additionally, describes in detail "[t]hermally curable coating materials of very special suitability," page 6, line 29, that include the components (A), (B), and (C) mentioned in the Office Action. There is no kind of language that would support an inference that these especially suitable, thermally curing coating materials are critical to the invention rather than being certain particularly preferred species. For example, earlier on that same page 6, Appellants stated that the "coatings of the invention may be thermoplastic or thermosetting." Page 6, line 7. The especially suitable coating examples are thermosetting; because thermoplastic coatings can also be used in making the claimed article, the particular thermosetting coating described in detail cannot be viewed as "essential" in the sense that its components are critical to all embodiments of the invention. Granted, the specification goes into great detail on these particular coatings. But, in *Johns Hopkins Univ. v. Cellpro, Inc.*, 152 F.3d 1342, 1361, 47 USPQ2d 1705, 1719 (Fed. Cir. 1998), the court held that a product claim is supported by adequate enabling disclosure even if it describes only one method of making the claimed product. The present application, then, is enabled by—but not limited to—the detailed embodiment of a coatings "of very special suitability" for making the invention.

In sum, Appellants have enabled the invention and have disclosed a particularly preferred embodiment—but not an only embodiment—of the invention. Accordingly, Appellants submit that the rejection should be REVERSED.

II. Appellants' invention as clamed in claims 1-12 and 19-23 meets the standard for definiteness because the claims, when read in light of the specification would be understood by the person of ordinary skill in the art; the Examiner's basis for rejection is legally inadequate.

The specification enables each of the independent claims and their respective dependent claims. First, the specification provides enables claims 1-12, 21, and 22 because Appellants teach how to prepare coatings, apply them to articles, cure or solidify the applied coatings, and test the coated articles for the properties in the claims. While Applicants' claims are broad, determining whether a coated article falls within the scope of the claims requires only straightforward testing according to the stated test methods. This testing protocol is described and illustrated in the present specification in sufficient detail to school the skilled artisan, including provisions of specific working examples.

The standard for claim validity under the second paragraph of section 112 is "whether those skilled in the art would understand what is claimed when the claim is read in light of the specification." *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.,* 806 F.2d 1565, 1576, 1 U.S.P.Q.2d (BNA) 1081, 1088 (Fed. Cir. 1986). The Examiner must establish that one of ordinary skill in the art, when reading the claim language in light of the supporting specification, would not be able to reasonably determine the scope of the claimed invention. *In re Sneed,* 710 F.2d 1544, 1548, 218 U.S.P.Q. 385, 388 (Fed. Cir. 1983) See also *In re Cavallito,* 127 U.S.P.Q. 206 (C.C.P.A. 1960) (finding rejection of claim as broader than specific examples improper; though broad, claim not indefinite when person of ordinary skill in the art can tell whether a given compound is within scope of claim).

Instead of pointing to any ambiguity in the scope of the claims, the Examiner cites a nonprecedential Board opinion that finds claims indefinite for claiming composition ingredients

"by what it is desired that they do rather than what they are," i.e., by functional language. *Ex parte Slob,* 157 USPQ 172, 173 (Bd. App. Int. 1967). The claims were rejected, not because their scope could not be determined, but because they were "functional." *Id.* (also finding claim "too broad as it appears to read on materials that could not possibly be used").

In the intervening forty years, the Federal Circuit has stated that "breadth is not indefiniteness," *SmithKline Beecham Corp. v. Apotex Corp.*, 365 F.3d 1306, 70 USPQ2d 1737, 1743 (Fed. Cir. 2004); *In re Gardner* , 427 F.2d 786, 166 USPQ 138 (CCPA 1970). Moreover, "functional" language is permitted in the claims. Moreover, functional language is not inherently indefinite. *Geneva Pharmaceuticals Inc. v. GlaxoSmithKline PLC*, 349 F.3d 1373, 68 USPQ2d 1865 (Fed. Cir. 2003); *In re Schreiber*, 128 F.3d 1473, 44 USPQ2d 1429 (Fed. Cir. 1997)*In re Swinehart,* 439 F.2d 210, 169 USPQ 226 (CCPA 1971). Thus, the Examiner's ground for rejecting the present claims does not comport with the state of the law on definiteness.

Because the Examiner has not set out a prima facie case for indefiniteness, Appellants respectfully request the rejection be REVERSED.

III. Appellants' invention as clamed in claim 23 is patentable over the cited test methods DIN 55676 and DIN 1041.

Before Appellants' invention, it was not obvious to try to carry out the claimed method of testing scratch resistance of a coating on an article. As Appellants discuss in their "Prior Art" section, although it appeared intuitive to correlate scratch resistance to coating surface hardness, it was not possible to do so, and such tests did not take into account other properties required of a coating. Page 2, lines 4-19. Furthermore, elastomers are resistive to damage by mechanical exposure but are unsuitable for transparent coating materials. Page 3, lines 1-8 (para. 9). The Court in *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 82 USPQ2d 1385, 1397 (2007) found it was "obvious to try" when "there are a finite number of identified, predictable solutions [so that] a person of ordinary skill has good reason to pursue the known options." The Examiner has not shown that such is the case here; Appellants believed that no "predictable" results existed, and the Examiner has introduced no evidence to the contrary. Scratch resistance had not previously been tested in the claimed manner, and there was no apparent reason to test scratch resistance in the claimed manner. No apparent reason would have led one to select from the "any number of standard testing methods," Office Action of 8/23/07, to devise the claimed method for measuring scratch resistance.

Further, the claimed method identifies scratch resistant materials with the unexpected properties of both scratch resistant and has a high relative elastic resiliency. Page 4, lines 22-31 (paras. 20-21).

For these reasons, Appellants respectfully request that the rejection of claim 23 be REVERSED.

IV. Appellants' claims 1-23 are not obvious from claims 1-25 of co-pending Application No. 10/510,997 because (A) claims 1-23 of the co-pending application claim aqueous dispersions and do not suggest the coated articles of claims 1-18, 21, and 22, the process of producing a scratch-resistant coating of claims 19 and 20, or the method of testing scratch resistance of claim 23; and (B) claims 24 and 25 of the co-pending application claim a method of applying the aqueous dispersion of claim 1 to a substrate but do not suggest coated articles as defined in claims 1-18, 21, and 22, a process of producing a scratch resistant coating by using a coating as defined in claims 19 and 20, or the method of testing scratch resistance of claim 23.

A. Patentability over claims 1-23 of Application No. 10/510,997

For there to be obviousness-type double patenting, the claims of the earlier patent must, on their face, suggest the present claims. Claims 1-23 of Application No. 10/510,997, however, are directed to aqueous dispersions with pH of from 2 to 7 and comprising components (A)-(C). Such claims in no way suggest an article comprising a transparent coating as in the present claims 1-18, 21, and 22. Nor do the claims to aqueous dispersions suggest a process of producing a scratch-resistant coating as in present claims 19 and 20; the aqueous dispersion claims are entirely silent as to any use. Finally, claims 1-12 of Application No. 10/510,997 do not in any way suggest a method of testing scratch resistance of a coating. The Examiner argues that one would have recognized that the "coating of the copending application . . . would result in the same relative elastic resilience and scratch resistance as claimed." None of the claims 1-23, however, mentions a coating composition, let alone a coating on a substrate.

Appellants submit that the Examiner has failed to establish a prima facie case of obviousness of claims 1-23 over claims 1-21 of Application No. 10/510,997.

B. Patentability over claims 24 and 25 of Application No. 10/510,997

Again, obviousness-type double patenting requires that the claims of the earlier patent must, on their face, suggest the present claims. Claims 24 and 25 are directed to methods

comprising "applying the aqueous dispersion of claim 1 to a substrate." Claim 24 continues with forming a coating for various articles, including a vehicle body or part, a building, a door, a window, furniture, coil, container, electrical component, white goods, and hollow glassware. Claim 25 applies the dispersion as a molding or as a self-supporting film.

Again, the claims 24 and 25 themselves do not suggest the presently claimed articles or methods, as the claims 24 and 25 do not suggest the properties for scratch resistance.

Therefore, Appellants respectfully request that the provisional rejection over claims 1-25 of Application No. 10/510,997 be REVERSED.

Conclusion

The present claims are patentable over the cited art. Applicants, therefore, respectfully petition this Honorable Board to reverse the final rejection of the claims on each ground and to indicate that all claims are allowable.

Respectfully submitted,

Anna M Budde

Anna M. Budde
Registration No. 35,085

January 21, 2008
Harness, Dickey & Pierce, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

Claim Appendix

Copy of the Claims Appealed

1. An article comprising a transparent coating, wherein the coating has a thickness of at least 30 μm, a relative elastic resilience to DIN 55676 of at least 70%, and a scratch resistance corresponding to a score of not more than 2 in a steel wool scratch test according to DIN 1041 after 10 double strokes.

2. The article of claim 1, wherein the coating has an elastic resilience of at least 74%.

3. The article of claim 1, wherein the coating has an elastic resilience of at least 78%.

4. The article of claim 1, wherein the coating has a thickness of at least 40 μm.

5. The article of claim 1, wherein the coating has a transmission >90% for light with a wavelength between 400 and 700 nm.

6. The article of claim 1, wherein the coating has an adhesion in accordance with DIN ISO 2409 to degreased float glass and degreased stainless steel 1.4301 of GT/TT 0/0.

7. The article of claim 1, wherein the coating has on a pigmented basecoat an adhesion according to DIN ISO 2409 of GT/TT 0/0.

8. The article of claim 1, wherein the coating is a thermosetting coating.

9. The article of claim 8, wherein the coating is prepared from a curable coating material.

10. The article of claim 9, wherein the coating is thermally curable.

11. The article of claim 9, wherein the curable coating material comprises organic and inorganic constituents.

12. The article of claim 11, wherein the curable coating material has an ignition residue of at least 10% by weight.

13. The article of claim 1, wherein the coating is prepared from a coating material comprising an aqueous dispersion with a pH of from 2 to 7 comprising

(A) at least one swellable polymer and/or oligomer containing at least one functional group that is at least one of an anionic functional group, a potentially anionic functional group, and/or a nonionic hydrophilic functional group,

(B) surface-modified, cationically stabilized inorganic nanoparticles of at least one kind, and

(C) at least one amphiphile.

14. The article of claim 13, wherein the aqueous dispersion, based on its total amount, has a solids content of up to 60% by weight.

15. The article of claim 13, wherein the aqueous dispersion, based on the sum (A) + (B) + (C), contains

- from 1 to 30% by weight of (A),
- from 60 to 98% by weight of (B), and
- from 1 to 10% by weight of (C).

16. The article of claim 13, wherein the at least one polymer and/or oligomer contains anionic and/or potentially anionic functional groups and has, at a pH of from 2 to 7, an electrophoretic mobility ≤ -0.5 (μm/s)/(V/cm).

17. The article of claim 13, wherein the inorganic nanoparticles (B) are selected from the group consisting of main group metals, transition group metals, and their compounds.

18. (Currently amended) The article of claim 13, wherein the at least one amphiphile is selected from the group consisting of monoalcohols and aliphatic polyols.

19. A process for producing a scratch-resistant coating comprising applying a coating material to a substrate or to an uncured, part-cured, or cured film present thereon, and curing the coating material, wherein the coating material, which following its solidification or curing, has an elastic resilience to DIN 55676 of at least 70% and a scratch resistance corresponding to a score of not more than 2 in a steel wool scratching test according to DIN 1041 after 10 double strokes.

20. The process of claim 19, wherein the coating material is applied by spraying.

21. The article of claim 1, wherein the coating is on a surface of a substrate, and the coating protects the substrate against damage by mechanical exposure and/or provides for decoration of the substrate.

22. The article of claim 21, wherein the substrate is one of a motor vehicle, a motor vehicle part, a building, furniture, a window, a door, an industrial part, a coil, a container, a packaging, an electrical component, a white good, a film or hollow glassware.

23. A method of testing scratch resistance of a coating, comprising providing a coating on an article, the coating having a thickness of at least 30 μm, and determining if the coating has a relative elastic resilience to DIN 55676 of at least 70%, and a scratch resistance corresponding to a score of not more than 2 in a steel wool scratch test according to DIN 1041 after 10 double strokes.

EVIDENCE APPENDIX

Evidence entered by examiner and relied on by appellant

None.

RELATED PROCEEDINGS APPENDIX

None.